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IN THE CLAIMS:

1. (Original) A method for use in a receiver for detecting and demodulating at least one signal of M-ary orthogonal symbols (MOK) comprising the steps of:
  - a. receiving coded M-ary orthogonally modulated symbols over a channel;
  - b. demodulating said M-ary orthogonally modulated symbols;
  - c. calculating a metric;
  - d. decoding said symbols;
  - e. calculating probabilities of different symbols for each symbol instance;
  - f. estimating a fading channel responsive to calculating the probabilities; and
  - g. iteratively feeding said metric, said decoded symbols, said probabilities and said estimate back into said demodulating step to re-demodulate said symbols coherently.
2. (Original) The method according to claim 1, wherein said coded M-ary orthogonally modulated symbols are convolutionally coded.
3. (Original) The method according to claim 1, wherein a first instance of said demodulating step is performed noncoherently and each successive instance of said demodulating step for said signal is performed coherently.
4. (Currently Amended) The method according to claim 1, further comprising the steps of:
  - [[a]]h. testing the decoded signal for recognition improvement; and
  - [[b]]i. repeating steps b through f iteratively until no recognition improvement is detected.
5. (Currently Amended) The method according to claim 1, further comprising the steps of:
  - [[a]]h. testing the decoded signal for recognition improvement; and
  - [[b]]i. repeating steps b through f iteratively until a preset threshold of the recognition improvement is attained.